Muschalla, B. (2018). A concept of psychological work capacity demands – first evaluation in rehabilitation patients with and without mental disorders. *Work: A Journal of Prevention, Assessment & Rehabilitation,* online published.

Running head: PSYCHOLOGICAL WORK CAPACITY DEMANDS

A concept of psychological work capacity demands – first evaluation in rehabilitation patients with and without mental disorders

Prof. Dr. Beate Muschalla

Work and Organizational Psychology, University of Potsdam, Germany and

Brandenburgklinik Bernau

Author note: Beate Muschalla, SRH University for Applied Health Sciences,

Neue Straße 28-30, 07548 Gera, Thuringia, Germany. Email:

beate.muschalla@gmx.de

Word count: 3643 words, 5 tables, 36 references (including 2 from Work)

Funding:

This research has been conducted within a larger project which was financially supported by the German Pension Fund. 8011 - 106 - 31/31.107.

Conflict of interest statement:

There are no conflicts of interest.

https://doi.org/10.24355/dbbs.084-201907240929-0

A concept of psychological work capacity demands – first evaluation in rehabilitation patients with and without mental disorders

ABSTRACT

BACKGROUND: Work capacity demands are a concept to describe which psychological capacities are required in a job. Assessing psychological work capacity demands is of specific importance when mental health problems at work endanger work ability. Exploring psychological work capacity demands is the basis for mental hazard analysis or rehabilitative action, e.g. in terms of work adjustment.

OBJECTIVE: This is the first study investigating psychological work capacity demands in rehabilitation patients with and without mental disorders.

METHODS: A structured interview on psychological work capacity demands (Mini-ICF-Work; Muschalla, 2015; Linden et al., 2015) was done with 166 rehabilitation patients of working age. All interviews were done by a state-licensed socio-medically trained psychotherapist. Inter-rater-reliability was assessed by determining agreement in independent co-rating in 65 interviews. For discriminant validity purposes, participants filled in the *Short Questionnaire for Work Analysis* (KFZA, Prümper et al.,1994).

RESULTS: In different professional fields, different psychological work capacity demands were of importance. The Mini-ICF-Work capacity dimensions reflect different aspects than the KFZA. Patients with mental disorders were longer on sick leave and had worse work ability prognosis than patients without mental disorders, although both groups reported similar work capacity demands.

https://doi.org/10.24355/dbbs.084-201907240929-0

CONCLUSIONS: Psychological work demands - which are highly relevant for work ability prognosis and work adjustment processes - can be explored and differentiated in terms of psychological capacity demands.

Keywords: Mental disorders, Mental health, Sick leave, Work ability, Work demands

https://doi.org/10.24355/dbbs.084-201907240929-0

A concept of psychological work capacity demands – first evaluation in rehabilitation patients with and without mental disorders

Concepts of psychological work capacity demands are needed

Mental health impairments of individuals may lead to problems and costs for the employee, the working team and society [1,2], and they are associated with long sick leave durations and phobic avoidance due to job anxiety [3,4]. Work capacity demands are a concept to describe which psychological capacities are required in a job. Persons with mental disorders are frequently impaired in psychological capacities [5] and therefore may encounter problems with work capacity demands resulting in sick leave [6]. Epidemiology studies show consistently over the decades that about 30% of the general population [7,8] or 14–29% of the working population [9,10] suffer from mental disorders, and 36.8% (men) and 49.5% (women) of new entrant disability pensions in 2014 in Germany were due to mental disorders [11]. Workplace health prevention thus needs to understand concepts and utilize assessments of psychological work demands.

Understanding psychological work capacity demands is crucial for decisions on work ability, for saving work ability, or finding the right person-job-fit [12-15] for employees, especially those with mental disorders.

Until now, there is paucity of information on the *psychological capacity demands* workplaces pose to employees. It is also unclear whether persons with mental disorders are faced with other (higher or lower) work capacity demands than persons without mental disorders.

This study is the first to address this gap of knowledge. It´s aims are twofold:

a) *A first evaluation of a concept of psychological work capacity demands* (Mini-ICF-Work) is done in a sample of rehabilitation patients from diverse professional fields.
b) Within this frame, *work capacity demands of patient with and without mental disorders* will be compared.

https://doi.org/10.24355/dbbs.084-201907240929-0

The concept and assessment tool of work capacity demands which is used in the present study is the Mini-ICF-Work [5,16]. It is built on the internationally evaluated capacity concept of the Mini-ICF-APP, an observer rating on the person´s psychological capacity level [5,6,17-19]. We here use the psychological capacity dimensions which the Mini-ICF-APP defines, and adopt them for the description of the work demands. Thus, *work capacity demands* are in the present study described on the following dimensions: (1) demands for adherence to regulations, (2) demand for planning and structuring of tasks, (3) demands for flexibility, (4) demands for decision making, (5) demands for endurance, (6) demands for contacts with others, (7) demands for group integration, (8) demands for assertiveness, (9) demands for mobility, (10) demands for expertise and competency.

In the following, the present empirical and conceptual state of science on psychological work capacity demands and relations with mental disorders will be reported.

Unclear relation between mental disorders and work capacity demands

In earlier research, there has been a great focus on the relation between mental health and perceived work stressors. Researchers have until now investigated concepts such as job demands or work stress and their relation with burnout, anxiety or depression [20-22]. It has been found that persons with mental disorders perceive their workplaces only partly more stressful than others [22]. Similarly, work demands, over commitment, or effort are partly – but not consistently – related with anxiety or depression symptoms [21]. Self-rating instruments on perceived work characteristics are often used to assess the workplace characteristics [20]. When self- and observer-rating have been used in parallel, then employees more affected from anxiety or depression symptoms saw more hindrances and lower resources in their work, while in contrast the rating of skills utilization by observers did not see skills related with mental symptom load [21].

https://doi.org/10.24355/dbbs.084-201907240929-0

Thus, to distinguish *work demands* from *work suffering* is often a problem in self-ratings. The until now unclear relation between mental health and work capacity demands is one of the starting points for the present investigation. It shows that concepts are needed which make possible to describe workplaces more "objectively", i.e. descriptively. The Mini-ICF-Work concept of work capacity demands aims at a non-judgmental capacity-oriented description of work demands.

Operationalization of work capacity demands

Operationalization of work demands can be based on capacity demands, such as skill discretion, decision authority, skill utilization, conflicting demands, or intense concentration [23]. Some earlier concepts represent a perception of stimuli at work rather than a description of work activities or skill demands (e.g. supervisor or coworker social support, job insecurity) [23]. When the aim is to avoid mixing work description and subjective perception (like "hostile coworkers" or "friendly coworkers"), then operationalizations of work demands are useful which are descriptive, non-judgmental and not stimulus-bound. A useful approach to describe work demands more descriptively - even if one cannot investigate the workplace itself - is asking for work demands on the level of *capacity* [15], or for work activities [24]. In this present study, *work capacity demands* will be understood purely descriptively in this sense: Work capacity demands are neither hypothesized to be hindrances nor challenges, neither good nor bad. This assumption of a non-stimulus-bound and non-judgmental work demand description is based on Lazarus´ transactional stress model. The transactional stress model and empirical evidence [25,26] show that the cognitive appraisal of any stimulus as a stressor/hindrance or a resource is independent from the stimulus itself. Whether a certain work demand means a "stressor" for a person is a subjective perception; e.g. 58% of a national population-based employee sample say that they are confronted with multiple tasks in parallel, but only 17% say this is a burden. 26% say that they have very detailed work

https://doi.org/10.24355/dbbs.084-201907240929-0

regulations, but only 9% say they are suffering from this [25]. Therefore, no work capacity demand will be assumed to be a hindrance, challenge, or resource per se. This idea to concentrate on capacities in work description research is not new. Kulik et al. [15] have suggested there could be (1987, p. 294) "…a measure that assessed individuals´ *capacity*…" There have been approaches and operationalization of skills and capacity-based work descriptions, like the occupational information network (O*NET) [27], and the Fleishman taxonomy of 73 cognitive, physical and perceptual-motor abilities [28]. However, there is no practical short rating which can be applied in work counselling (e.g. for questions concerning return-to-work management), or for purposes of documentation of the mental-health-endangering work demands [29]. In this present investigation a short rating for work capacity demands (Mini-ICF-Work) [5,16] has been used for the first time. In a structured interview, the employee is asked *what s/he has to do at work* ("work activities" in the sense of Oldham & Hackman [24]) and *which capacities are required for this work*. It does not ask what s/he thinks of his/her workplace. The work capacity demand concept is based on an ICF [30]-oriented and internationally validated socio-medical concept of work ability description in mental disorders [Mini-ICF-APP, 17-19]. It covers capacity dimensions which play a major role in the description of (mental) work ability, i.e. demands for adherence to regulations, planning and structuring of tasks, flexibility, decision and judgment, contacts with other, group integration, assertiveness, mobility, competency, endurance.

This is the first study in which *work capacity demands* are explored based on the same dimensions as *mental work ability* can be described. By using the same definitions of capacities, a way for compatibility of work ability (Mini-ICF-APP) and work capacity demands (Mini-ICF-Work) descriptions will be opened.

Question of research

https://doi.org/10.24355/dbbs.084-201907240929-0

This study is the first approach to describe workplaces in terms of psychological capacity demands. The definitions of the capacity dimensions are based on the evaluated capacity definitions in the Mini-ICF-APP [17-19].

a) The first aim of this study is an evaluation of psychometric properties of a new assessment on work capacity demands (Mini-ICF-Work [5,16]).
b) Within the frame of this study, a first explorative question is whether persons with mental disorders have similar or systematically different (in terms of lower or higher) work capacity demands in comparison to mentally healthy rehabilitation patients.

Methods

Procedure

Sample participants were recruited from a neurological rehabilitation clinic in Germany. Participants had different neurological disorders, e.g. state after infarction or after successful brain surgery, or migraine, or other neurological disorders which allow to focus return to work perspectives. All 166 participants were in pre-vocational reintegration stages. Participants were of working age (18-65 years). All participants underwent a structured interview on mental disorders (*Mini International Neuropsychiatric Interview, MINI* [31]) and work capacity demands (*Mini-ICF-Work* [5,16]). Participants were also asked for their concrete current profession. The investigation was done in the first half of the year 2014. All interviews have been done by a state-licensed psychological psychotherapist with ten years of experience in socio-medical and work-related mental health issues. A trained psychological research assistant was present in the interview for co-rating of the work capacity demands. She assisted 65 out of 166 interviews. Both interviewer and co-rater rated the work capacity demands (*Mini-ICF-Work*) independently from each other. Ratings were determined according to participants' answers during the interview. Participants were asked to

https://doi.org/10.24355/dbbs.084-201907240929-0

fill in a short self-rating questionnaire for work analysis (*Kurzfragebogen zur Arbeitsanalyse, KFZA*) [32]. Additionally, data on the objective socio-medical work ability prognosis (assessed by physicians) were taken from the routine clinic database for descriptive purposes.

Instruments

Mini International Neuropsychiatric Interview (MINI) [31]. Mental disorders were assessed with the internationally evaluated and established DSM-IV-based structured diagnostic interview *MINI* [31]. The interview covers the full range of the common mental disorders, e.g. depressive and manic disorders, anxiety disorders, addiction disorders, adjustment disorders, and personality disorders. Diagnoses are assessed as categorical variables (disorder yes or no). Sensitivity was good (.70) as well as specifity (.85), inter-rater kappa (.07-1.00) and test-retest-kappa (.52-1.00, only acute mania was below .50).

The Short Questionnaire for Work Analysis (in German: KFZA [32]). The KFZA self-rating *Short Questionnaire for Work Analysis* is a 26-item questionnaire covering established constructs and evaluated items of work description [32]. It contains the dimensions of scope of action, job variety, holistic job, social support, (need for) cooperation, qualitative over-taxation, quantitative over-taxation, situational constraints (interruptions and defect materials), work environment stressors (physical working conditions), information and participation, and benefits and possibilities for development. A part of the items is formulated descriptively (items on interruptions, or physical stressors like climate), and a part is asking for subjective perceptions (perception of social support, or over-taxation). Cronbach´s alpha ranged from .505 – .787 (six dimensions >.700). In this study, the KFZA is used to test the discriminant validity of the *Mini-ICF-Work*. The Mini-ICF-Work shall provide a description

https://doi.org/10.24355/dbbs.084-201907240929-0

of the workplace in terms of *capacity demands*. Therefore, there should be low or even zero correlations between most categories of the KFZA and the Mini-ICF-Work.

Mini-ICF-Work [5,16]. The *Mini-ICF-Work* observer-rating on work capacity demand**s** [5,16] is adopted from an internationally evaluated short rating for the description of psychological capacity disorders and work ability (Mini-ICF-APP) [17-19]. The Mini-ICF-APP is an instrument for assessing capacity impairment of the person, e.g. in order to describe his/her impairment in daily life and work ability. The *Mini-ICF-Work* for the description of *capacity demands of the workplace* is based on the Mini-ICF-APP capacity dimensions. The Mini-ICF-Work has been developed by changing the rating from an impairment rating of the person to a rating of capacity demands of the workplace. The ten work-relevant work capacity demand dimensions applied in this present study are the following: (1) demands for adherence to regulations, (2) demand for planning and structuring of tasks, (3) demands for flexibility, (4) demands for decision making, (5) demands for endurance, (6) demands for contacts with others, (7) demands for group integration, (8) demands for assertiveness, (9) demands for mobility, (10) demands for expertise and competency. These work capacity demands are explored in a half-structured interview (see appendix). Ratings of the degree of capacity demands are given on a qualitative and a quantitative rating scale [16]. Both scales are from 0 = *this capacity is not needed* to 4 (qualitative) = *this capacity is needed in an extraordinary quality and a deficit in this capacity causes damage or means danger* or 4 (quantitative) = *this capacity is needed all the time during a working day*. A mean score of the qualitative and quantitative rating can be calculated for each capacity dimension and can be interpreted as an overall capacity demand score for the respective dimension.

Statistical analysis

https://doi.org/10.24355/dbbs.084-201907240929-0

Participants´ characteristics are described in means and frequencies (Table 1). Inter-rater reliabilities of the *Mini-ICF-Work* dimensions are calculated with Spearman correlation (Table 2). Correlation analyses have been done for investigating the discriminant validity of *Mini-ICF-Work* and *KFZA* (Table 3) and the interrelation pattern of the *Mini-ICF-Work*-dimensions (Table 2). For discriminant validity, ratings of the work capacity demand dimensions (*Mini-ICF-Work*) and the subjective work perception (*KFZA*) were correlated, expecting zero or low correlations as indicator for the independence of the two instruments. In order to prove whether the work capacity demands rating is able to differentiate capacity demands over different professions, a comparison of the different professional groups has been done by analysis of variance (ANOVA, Table 4). Finally, T-tests have been calculated for comparison of participants with and without mental disorders (Table 5).

Results

Participants

One hundred sixty-six patients (52% men), aged $M = 50.97$ ($SD = 8.7$, range 24–64) years, were investigated with the structured interview, and 124 answered the additional short self-rating questionnaire for work analysis. Work ability prognosis data from 112 participants could be obtained from the medical report. In this sample, comparable to the general population, 29% had a diagnosis of mental disorder in the DSM-based diagnostic *MINI* interview [31]. No one had a severe mental disorder (like psychotic disorder or severe depression). For all participants "working life" and "return to work" was a realistic topic. Participants´ characteristics are displayed in Table 1.

[insert table 1 about here]

https://doi.org/10.24355/dbbs.084-201907240929-0

Psychometric evaluation of the Mini-ICF-Work

Inter-rater reliability, i.e. agreement of the interviewer´s and co-rater´s ratings of work demands, were calculated with Spearman correlations and ranged from $r = .627$ to $r = .914$ on the level of integrated scores (mean of qualitative and quantitative dimension of work demand). Regarding the qualitative and quantitative dimensions in details, out of 20 inter-rater correlations, 18 were $r > .650$, 14 were $r > .700$ (Table 2).

Regarding the inter-correlations of the work capacity demands (Table 2), there is a moderate overlap between the different work demand dimensions, but only five out of 45 pairs show correlations above .50. This means that the different work capacity demands represent different contents and not redundant information.

[insert table 2 about here]

For testing discriminant validity, the *Short Questionnaire for Work Analysis* (KFZA) [32] was filled in by the participants after the interview on work capacity demands. Table 3 shows the correlations between the dimensions of job description according to *KFZA* and the dimensions of job capacity demands according to the *Mini-ICF-Work*. Most *KFZA* dimensions are independent from the work capacity demand ratings. Correlations above .30 are only found between scope of action on the one side and planning and structuring, decision making, or competency on the other side. Quantitative over-taxation showed correlations with endurance and flexibility. Situational constraints were associated with flexibility, contacts and assertiveness, and benefits and development possibilities with competency. Thus the contents of the two instruments reflect partly similar contents, but most of the pairwise correlations (101 out of 110) do not show relevant overlaps. The work capacity demands provide a level of work description different from the work perception as measured with the *KFZA*.

https://doi.org/10.24355/dbbs.084-201907240929-0

[insert table 3 about here]

Differences of work capacity demands of different professional groups

Table 4 shows the comparison of the different professional groups. The comparison of the capacity demand levels over the different professions shows that there are differences in the levels the capacities are required, e.g. self-employed or in higher leading position have significant higher demand of structuring and planning ($M = 3.23$) than most other professional groups. In manufacturing, technic and production, there are significant lower demands for contacts with others ($M = 0.89$). Security, delivery and police office have significant higher demands for mobility ($M = 1.65$) than most other professional groups. Teachers and educators need more assertiveness ($M = 2.06$) than other professions, etc.

The unequal distribution of capacity demands in the different professional fields shows that the *Mini-ICF-Work* makes possible to describe differences between professional fields in terms of capacity demands levels.

[insert table 4 about here]

Comparison of patients with and without mental disorders

Beside the psychometric evaluation of the *Mini-ICF-Work*, a first explorative question of this research was whether persons with mental disorders have other work capacity demands than other persons. Table 5 shows the results of the comparison of both groups concerning capacity demands and work ability. According to the literature, patients with mental disorders had a longer duration of sick leave in the past 12 month and a worse work ability prognosis than the others. However, in our sample there were no differences between patients with and without

https://doi.org/10.24355/dbbs.084-201907240929-0

mental disorders concerning level and profile of work capacity demands. This means the patients with mental disorders had similar work capacity demands like the others.

[insert table 5 about here]

Discussion

Conceptual and methodological value

The conceptual and methodologically new idea in this present study is the introduction of a capacity approach for work demands description according to an evaluated ICF-based instrument [17-19]. The capacity dimensions were adapted for the description of work demands (in opposition to the person capacity disorder). The interview-based observer-ratings of the work capacity demands had good inter-rater reliability. The capacity ratings showed different profiles in the different professional groups, e.g. teachers and health personnel have higher demands in group integration than others. This shows that the capacity rating dimensions are valid for differential workplace descriptions.

This research has been done in a rehabilitation setting in Germany. The observational approach uses data from face-to-face-interviews done by a socio-medically trained interviewer and co-rater. The study has been conducted in a heterogenous sample of persons of working age from all kinds of professions. They were in a work ability assessment situation before return to work. Results can be assumed to be of high ecological validity. Further research on psychological work capacity demands should be done in other clinical groups and in healthy working persons, and consider different professional fields. Studies until now often focused on risk groups like health care workers [33].

This research adds to theory and methodology by offering a new descriptive level of work demand description, i.e. purely psychological capacities (in opposition to work descriptions

https://doi.org/10.24355/dbbs.084-201907240929-0

with stimulus-oriented items, or ratings of perceived job stress [22,33]), and by offering a practical short observer rating. It can be applied in both research, and medical and occupational practice, e.g. for purposes of work demands assessment in work adjustment or reintegration processes, or person-job-fit questions in personnel planning, or occupational health oriented hazard and work analysis.

Future studies should consider wider context factors, e.g. whether or not a workplace is (or should be) in a special way adjusted according to a capacity disorder.

The role of mental disorders

The finding that patients with mental disorders get worse work ability prognosis and have longer sick leave durations under "normal" work capacity demands indicate that these patients have problems to fulfil similar work demands that other persons can fulfil. Thus, employees with mental disorders may need support at work and attention in the sense that their work capacity demands fit their (eventually reduced) capacity level. Since there were no differences in the degree of work capacity demands, the question arises in which ways persons with reduced capacity level can be supported at the workplace in order to fit the normal work demands.

Limitations

This is a cross-sectional study and thus we do not have data on courses of work demands and work ability over the course. Thus we cannot make causal interpretations. Future research needs longitudinal studies.

Furthermore, we here investigated a specific group of rehabilitation patients. However, in this clinical group it was possible to assess both mental health status as well as work capacity demands at the same time.

https://doi.org/10.24355/dbbs.084-201907240929-0

Further research directions

The present study must be seen as an important first step towards a complex topic. It is intended to stimulate continued research on the relationship between mental disorder, work capacity demands, and work ability. We need advanced knowledge about which work demands can help persons with common mental disorders remain in the workforce. This is a relevant question keeping in mind that 30% of the general population are affected from common mental disorders [8], and these individuals are an important part of our workforce. Work ability is always dependent on both: person characteristics and work environment, including work demands [34]. The capacity demand perspective adds to approaches which focus merely on person characteristics [35].

Future research may continue this line of study with focus on different types of mental health impairment and the interaction with specific psychological work demands. Specific research questions might address whether high demands of group interaction at work make persons with social anxiety disorders unable to work, or whether persons with hypochondriac anxiety who are working with toxic material are more endangered for work disability.

For work modification [36] and for vocational rehabilitation and return to work the important question is: Which work demands can be fulfilled by persons with which (clinical) characteristics?

Data on the distribution of work capacity demands in other specific clinical and in non-clinical controls are needed in future research. Further evaluation and development of the *Mini-ICF-Work* will be done (see appendix).

Conclusion

https://doi.org/10.24355/dbbs.084-201907240929-0

Work capacity demands which are relevant in work ability issues (e.g. prognosis, work adjustment, person-job-fit) can be explored differentiatedly in terms of psychological capacity demands.

In this study, persons with mental disorders report workplaces with comparable work capacity demands like persons without mental disorders. The higher work ability impairment (presenting as sick leave) of persons with mental disorders cannot be explained by higher or lower work capacity demands.

Future research is needed for a more differentiated understanding of the specific work demands for persons with specific (clinical) characteristics. This is the question of a clinical person-job-fit.

Conflict of interest statement:

There are no conflicts of interest.

Acknowledgments / Funding:

[Edited for the review process]

Contribution:

The author initiated the study and designed the study. She carried out the diagnostic interviews together with a psychological assistant. The author did the data analysis and wrote the manuscript.

https://doi.org/10.24355/dbbs.084-201907240929-0

https://doi.org/10.24355/dbbs.084-201907240929-0

References

1. Haslam C, Atkinson S, Brown SS, Haslam RA. (2005). Anxiety and depression in the workplace: effects on the individual and organization (a focus group investigation). J Affect Disord. 2005;88:209–15.
2. Vornholt K, Uitdewilligen S, Nijhuis FIN. Factors Affecting the Acceptance of Persons with Disabilities at Work: a Literature Review. J Occup Rehabil. 2013;23:463–75. doi: 10.1007/s10926-013-9426-0
3. Henderson M, Harvey SB, Overland S, Mykletun A, Hotopf M. Work and common psychiatric disorders. J R Soc Med. 2011;104:198–207. doi: 10.1258/jrsm.2011.100231
4. Muschalla B, Heldmann M, Fay D. The significance of job-anxiety in a working population. Occup Med. 2013;63:415–21. doi: 10.1093/occmed/kqt072
5. Linden M, Baron S, Muschalla B, Ostholt-Corsten M. Fähigkeitsbeeinträchtigungen bei psychischen Erkrankungen. Diagnostik, Therapie und sozialmedizinische Beurteilung in Anlehnung an das Mini-ICF-APP. [Capacity disorders in mental disorders. Diagnostic, therapy, and socio-medical aspects according to the Mini-ICF-APP.] Bern: Hans Huber; 2015.
6. Muschalla B. Different work capacity impairments in patients with different work-anxieties. Int Arch Occup Environ Health. 2016;89:609–619. doi: 10.1007/s00420-015-1099-x.
7. Baxter AJ, Scott KM, Ferrari AJ, Norman RE, Vos T, Whiteford HA. Challenging the myth of an "epidemic" of common mental disorders: trends in the global prevalence of anxiety and depression between 1990 and 2010. Depress Anxiety. 2014;31:506–16. doi: 10.1002/da.22230
8. Wittchen HU, Jacobi F, Rehm J, Gustavsson A, Svensson M, Jönsson B, et al. The size and burden of mental disorders and other disorders of the brain in Europe 2010. Eur Neuropsychopharmacol. 2011;21:655–79. doi: 10.1016/j.euroneuro.2011.07.018

https://doi.org/10.24355/dbbs.084-201907240929-0

9. Larsen A, Boggild H, Mortensen JT, Foldager L, Hansen J, Christensen A, et al. Mental Health in the Workforce: An Occupational Psychiatry Study. Int J Soc Psychiatry. 2010;56:578–92. doi: 10.1177/0020764009345059
10. Stansfeld SA, Pike C, McManus S, Harris J, Bebbington P, Brugha T, et al. Occupations, work characteristics and common mental disorder. Psychol Med. 2013;43:961–73. doi: 10.1017/S0033291712001821
11. DRV Deutsche Rentenversicherung. Rentenversicherung in Zahlen 2015. [Statistics of the German Federal Pension Fund.] Berlin: DRV; 2015.
12. Cramer C, Davidhizar R. The health care employee with an "attitude". Hosp Mater Manag Q. 2000;22:27–33.
13. Edwards JR, van Harrison R. Job demands and worker health: Three-dimensional reexamination of the relationship between person-environment fit and strain. J Appl Psychol. 1993;78:628–48.
14. French JRP Jr. Person role fit. Occup Mental Health. 1973;3:15–20.
15. Kulik CT, Oldham GR, Hackman JR. Work Design as an Approach to Person-Environment-Fit. J Vocat Behav. 1987;31:278–96.
16. Muschalla B. Mini-ICF-Work: Ein Fremdrating zur Erstellung von Fähigkeitsanforderungsprofilen an Arbeitsplätzen. [Mini-ICF-Work: An observer-rating for psychological capacity demands at work.] DRV-Schriften. 2015;107:119–21.
17. Linden M, Baron S, Muschalla B. Mini-ICF-Rating für psychische Störungen (Mini-ICF-APP). Ein Kurzinstrument zur Beurteilung von Fähigkeits- bzw. Kapazitätsstörungen bei psychischen Störungen. [A short rating for capacity impairment in mental disorders (Mini-ICF-APP)] Göttingen: Hans Huber 2009.
18. Linden M, Baron S, Muschalla B. Capacity according to ICF in relation to work related attitudes and performance in psychosomatic patients. Psychopathology. 2010;43:262–67. doi: 10.1159/000315125

https://doi.org/10.24355/dbbs.084-201907240929-0

19. Molodynski A, Linden M, Juckel G, Yeeles K, Anderson C, Vazquez-Montes M, et al. The reliability, validity, and applicability of an English language version of the Mini-ICF-APP. Soc Psychiatr Psychiatr Epidemiol. 2012;48:1347–54. doi: 10.1007/s00127-012-0604-8
20. Crawford ER, LePine JA, Rich BL. Linking Job Demands and Resources to Employee Engagement and Burnout: A Theoretical Extension and Meta-Analytic test. J Appl Psychol. 2010;95:834–48. doi: 10.1037/a0019364
21. Griffin JM, Greiner BA, Stansfeld SA, Marmot M. The Effect of Self-Reported and Observed Job Conditions on Depression and Anxiety Symptoms: A comparison of Theoretical Models. J Occup Health Psychol. 2007;12:334–49.
22. Wang JL, Lesage A, Schmitz N, Drapeau A (2008). The relationship between work stress and mental disorders in men and women: findings from a population-based study. J Epidemiol Community Health. 2008;62:42–7.
23. Karasek R, Brisson C, Kawakami N, Houtman I, Bongers P, Amick B. The Job Content Questionnaire (JCQ): An Instrument for Internationally Comparative Assessments of Psychosocial Job Characteristics. J Occup Health Psychol. 1998;3:322–55.
24. Oldham GR, Hackman JR. Not what it was and not what it will be: The future of job design research. J Organ Behav. 2010;31:463–79. doi.org/10.1002/job.678
25. BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin. Stressreport Deutschland 2012. Psychische Anforderungen, Ressourcen und Befinden. [Stress report Germany. Psychological demands, resources and wellbeing.] Berlin: BAuA; 2012.
26. Lazarus RS. Psychological stress and the coping process. New York: McGraw-Hill 1966.
27. Peterson NG, Borman WC, Hanson MA, Kubisiak UC. Summary of results, implications for O*NET applications and future directions. In: Peterson NG, Mumford MD, Borman WC, Jeanneret PR, Fleishman EA, editors. An occupational information system for the 21st century Washington, DC: American Psychological Association; 1999, pp. 289–296.

https://doi.org/10.24355/dbbs.084-201907240929-0

28. Fleishman EA, Reilley ME. Handbook of Human Abilities: Definitions, measurements, and job task requirements. Palo Alto, CA: Consulting Psychologists Press; 1992.
29. Hofmann M. Gefährdungsbeurteilung durch den Arbeitgeber bezüglich psychischer Belastungen am Arbeitsplatz. Ein innereuropäischer Vergleich. [Mental hazard analysis at work in European countries.] Berlin/Freiburg: DGPPN; 2014.
30. WHO World Health Organization. International Classification of Functioning, Disability and Health (ICF). Geneva: World Health Organization; 2001.
31. Sheehan D, Lecrubier Y, Sheehan H, Amorim P, Janavs J, Weiller E, et al. The Mini International Neuropsychiatric Interview: the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatr. 1998;59:22–33.
32. Prümper J, Hartmannsguber K, Frese M (1995). KFZA – Kurzfragebogen zur Arbeitsanalyse. [KFZA – The Short Questionnaire for Work Analysis.] Z Arbeits- Organisationspsychol. 1995;39:125–32.
33. McGonagle AK, Barnes-Farrell JL, Milia LD, Fischer FM, Hobbs BBB, Iskra-Golec I, et al. Demands, resources, and work ability: A cross-national examination of health care workers. Eur J Work Organizational Psychol. 2014;23:830–46. doi.org/10.1080/1359432X.2013.819158
34. Siu AM, Hung A, Lam AY, Cheng A. Work limitations, workplace concerns, and job satisfaction of persons with chronic disease. Work. 2013;45:107–15.
35. Harker R, Pidgeon AM, Klaassen F, King S. Exploring resilience and mindfulness as preventative factors for psychological distress burnout and secondary traumatic stress among human service professionals. Work. 2016;54:631–7. doi: 10.3233/WOR-162311.
36. Carroll C, Rick J, Pilgrim H, Cameron J, Hillage J. Workplace involvement improves return to work rates among employees with back pain on long-term sick leave: a systematic review of the effectiveness and cost-effectiveness of interventions. Disabil Rehabil. 2010;32:607–21. doi: 10.3109/09638280903186301

https://doi.org/10.24355/dbbs.084-201907240929-0

Table 1

Sample characteristics

Qualification	
Completed apprenticeship	81%
Master of manufacturing	3%
Academic degree (university)	13%
Without professional qualification	3%
Employment status	
Fulltime employed	55%
Part-time employed	20%
Presently looking for a new workplace	12%
Supported employment	6%
Disability pension (a pension on time payed to persons who cannot continue work due to a health problem)	6%
Professional status in their present or last workplace (on which exploration focused)	
Employed	75%
higher leading position	14%
Self-employed	7%
Working as unskilled workers	5%
Type of work	
Mainly physically demanding work	38%
Mainly office work	34%
Team work?	
Work mostly alone	26%
Work mostly together with colleagues	52%
Contacts with thirds (clients, students, patients) nearly every working day	63%
Any kind of irregular working time (e.g. shift work, services, or working on assembly services several days away from home)	36%

https://doi.org/10.24355/dbbs.084-201907240929-0

https://doi.org/10.24355/dbbs.084-201907240929-0

Table 2

Inter-correlations of work capacity demands according to Mini-ICF-Work (N = 166), and inter-rater reliability (n = 65)

Work capacity demands	1	2	3	4	5	6	7	8	9	*r* quantitativ capacity demands	*r* qualitative capacity demands	*r* integrated score (mean of qualitative & quantitative)
Adherence to regulations										.685	.542	.627
Structuring and planning of tasks	-.469**									.712	.678	.714
Flexibility	-.111	.357**								.740	.534	.799
Decision making and judgment	-.390**	.649**	.435**							.755	.761	.798
Endurance	.134	.049	.487**	.227**						.806	.795	.824
Contact with others	-.188*	.387**	.482**	.407**	.310**					.906	.859	.914
Group integration	-.138	.286**	.364**	.344**	.173*	.410**				.786	.733	.817
Assertiveness	-.172*	.459**	.447**	.477**	.239**	.619**	.423**			.715	.786	.809
Mobility	-.132	.129	-.034	.134	-.030	.001	-.063	.109		.668	.656	.791
Competency	-.175*	.529**	.452**	.676**	.241**	.430**	.395**	.504**	.180*	.706	.814	.783

*p<.05, **p<.01

https://doi.org/10.24355/dbbs.084-201907240929-0

Table 3

Discriminant validity: Work capacity demands according to Mini-ICF-Work correlated with the work perception according to the KFZA Short Questionnaire for Work Analysis (n = 124)

Capacity demands according to Mini-ICF-Work Work perception according to the Short Questionnaire for Work Analysis (KFZA)	Regu-lations	Plan-ning	Flexi-bility	Deci-sion	Endura nce	Contact s with others	Group	Asser-tiveness	Mobilit y	Compe-tency
Scope of action	-.261**	.458**	.150	.361**	-.126	.152	.168	.135	.058	.308**
Job variety	-.241*	.226*	.126	.152	-.006	.211*	.160	.139	.028	.214*
Holistic job	-.056	.086	-.061	.128	-.084	-.014	.087	.000	.048	.090
Social support	-.068	-.143	-.090	-.016	-.103	-.029	.145	.013	.070	.044
(Need for) cooperation	.055	-.080	.020	.052	.105	.029	.102	.072	.073	.124
Qualitative overtaxation	-.043	-.051	.080	-.081	.169	.043	.044	.043	.029	-.076
Quantitative overtaxation	.041	.115	.322**	.089	.319**	.187*	.138	.203*	-.108	.110
Situational constraints (interruptions and defect material)	.010	.258**	.454**	.212*	.287**	.318**	.188*	.323**	-.092	.208*
Work environment stressors (physical working conditions)	.037	-.110	.042	-.069	.161	-.083	-.060	.080	.123	-.080
Information and Participation	-.075	.135	.094	.155	.095	.194*	.132	.121	.146	.231**
Benefits and possibilities for development	-.044	.178*	.225*	.253**	.114	.288**	.193*	.215*	.032	.387**

*p<.05, **p<.01

Table 4

https://doi.org/10.24355/dbbs.084-201907240929-0

Results of ANOVA for differences in work capacity demands as measured by Mini-ICF-Work in different professional groups. ANOVA with Post-hoc tests and Bonferroni correction has been calculated over the 10 work capacity dimensions. Means (standard deviation) are shown. In the last line, the number of patients with mental disorder is displayed for descriptive purpose.

	1	2	3	4	5	6	7	8
Professional group	Manufacturing, technic and production (*n* = 56)	Office with client services (*n* = 25)	Supermarket or single market (*n* = 14)	Security, delivery, police office (*n* = 10)	Health services nursing (*n* = 14)	Office without clients, IT, accounting, research (*n* = 16)	Teacher, educator, pre-school teacher (*n* = 17)	Self-employed or higher leading position (*n* = 13)
	Mean (SD)	Mean (SD)						
Adherence to regulations	2.61 (0.68)[1]	2.56 (0.60)	2.64 (0.36)	2.80 (0.75)	2.89 (0.76)[2]	2.28 (0.82)	2.21 (0.50)	1.96 (0.75)[1,2]
Structuring and planning of tasks	1.54 (0.99)[1,2,3]	2.36 (0.81)[1,4]	1.46 (0.82)[5,6]	1.25 (1.27)[4,7,8]	2.00 (0.62)[9]	2.59 (0.71)[2,5,7]	2.26 (0.77)	3.23 (0.52)[3,6,8,9]
Flexibility	1.14 (0.69)[1,2,3,4]	1.54 (0.91)	1.96 (0.84)[1]	1.35 (0.88)	2.07 (1.05)[2]	1.31 (0.70)	1.91 (0.96)[3]	2.19 (0.69)[4]
Decision making and judgment	1.71 (0.76)[1]	1.92 (0.83)	1.71 (0.70)[2]	1.50 (0.97)[3]	2.18 (0.61)	2.09 (0.86)	2.15 (0.88)	2.69 (0.63)[1,2,3]
Endurance	2.08 (0.61)	2.06 (0.60)	2.43 (0.65)	2.05 (0.72)	2.36 (0.72)	1.96 (0.39)	2.26 (0.71)	2.42 (0.76)
Contact with others	0.89 (0.87)[1,2,3,4,5,6]	2.06 (0.86)[1,2,7,8]	2.61 (0.49)[3,9,10]	1.30 (0.98)[9,11,12,13]	2.96 (0.37)[4,7,11,14]	1.38 (0.83)[10,14,15,16]	3.00 (0.43)[5,8,12,15]	2.50 (0.65)[6,13,16]
Group integration	1.25 (0.68)[1,2]	1.64 (0.90)[3]	1.18 (0.69)[4,5]	1.15 (0.75)[6,7]	2.36 (0.91)[1,4,6]	1.69 (0.57)	2.53 (0.87)[2,3,5,7]	1.88 (0.98)
Assertiveness	0.80 (0.72)[1,2,3,4]	1.14 (0.59)[5]	1.29 (0.32)	1.55 (1.09)[1]	1.68 (0.50)[2]	1.25 (0.68)[6]	2.06 (0.75)[3,5,6]	1.73 (0.88)[4]
Mobility	0.91 (0.91)	0.40 (0.63)[1]	0.39 (0.69)[2]	1.65 (1.33)[1,2,3,4,5]	0.46 (0.69)[3]	0.28 (0.45)[4]	0.56 (0.63)[5]	0.88 (0.91)
Competency	1.27 (0.90)[1,2,3,4]	1.96 (0.88)[1]	1.89 (0.68)	1.85 (1.06)	2.00 (0.88)	2.13 (0.65)[2]	2.24 (0.97)[3]	2.27 (0.99)[4]
n (%) patients with mental disorders	15 (26.3%)	7 (28%)	4 (28.6%)	2 (20%)	5 (35.7%)	5 (31.25%)	7 (41.2%)	3 (23.1%)

https://doi.org/10.24355/dbbs.084-201907240929-0

Note: [1,2,3,4,5,6] Equal superscript numbers mark significant difference (.05, 2-tailed) between the respective professional groups. Example: There is a significant difference between the mean of *structuring and planning* between *office with client service* (*M*=2.36 (*SD*=0.81))**[1,4]** as compared to *manufacturing* (*M*=1.54 (*SD*=0.99))**[1]**,[2,3] or *security* (*M*=1.25 (*SD*=1.27))**[4]**,[7,8]

https://doi.org/10.24355/dbbs.084-201907240929-0

https://doi.org/10.24355/dbbs.084-201907240929-0

Table 5

Comparison of work capacity demands in patients with and without mental disorders. Work ability data are displayed in the last line for descriptive purposes.

Work capacity demands according to Mini-ICF-Work	Patients with mental disorder (n = 47)		Patients without mental disorders (n = 118)		Sig. of difference in t-Test (X^2-Test)
	M	*SD*	*M*	*SD*	*p*
Adherence to regulations	2.49	0.62	2.53	0.72	.765
Structuring and planning of tasks	1.95	1.00	2.01	1.03	.726
Flexibility	1.68	0.94	1.49	0.87	.208
Decision making and judgment	1.91	0.74	1.94	0.85	.880
Endurance	2.12	0.65	2.18	0.64	.556
Contact with others	1.73	1.07	1.83	1.13	.602
Group integration	1.68	0.92	1.59	0.88	.553
Assertiveness	1.31	0.73	1.24	0.84	.558
Mobility	0.60	0.79	0.73	0.92	.408
Competency	1.80	0.92	1.78	0.96	.912
Work ability prognosis mean	3.64	2.98	4.72	3.39	.067
Bad work ability prognosis for next six months (work ability less than 3-6 hours/day)	39.4%		19.1%		(.021)
Duration of sick leave in the past 12 months in weeks	11.60	32.02	4.81	11.51	.045

https://doi.org/10.24355/dbbs.084-201907240929-0

Appendix

Questions of the semi-structured interview on work capacity demands according to the Mini-ICF-Work (Linden et al., 2015; Muschalla, 2015). These questions are examples for exploring the work capacity demands.

1. Adherence to regulations: Are there defined working times, routines, or rules which have to be obeyed? Does it lead to negative consequences when an employee does not obey the rules or times?
2. Structuring and planning of tasks: In which wise and to which amount has the employee to structure his/her work tasks, work days on her/his own? Are there negative consequences when things are not senseful planned or structured?
3. Flexibility: Are there disruptions during work, or does the employee need to adjust to varying and new demands, or sudden changes? Are there negative consequences when an employee cannot react very fast?
4. Decision making and judgement: Does the employee have to make decisions on his/her own? Are these decisions of high economic or personal value? What happens if the employee makes a wrong decision?
5. Endurance: Does the employee have to work longer on many working days, or with only few breaks? Are there others who may help in case endurance is low?
6. Contact with others: Does the work require small talk capacity? Are there frequently short positive interactions with colleagues or clients? Does the work require extraversion? Would a shy employee have problems in fulfilling this job?
7. Group integration: Are tasks to be done in cooperation with others? Does the job position belong to a team? What happens if the employee does not cooperate with others?
8. Assertiveness: Does the job require to stand or push through one´s position against others? Are there regularly discussions in which the employee has to defend his position?
9. Mobility: Does the job require to use different traffic means? Does the workplace change regularly? Does the work require being on the move?
10. Expertise and competency: Does the job require specific expertise? Does the employee have to undergo further education and training?

The next three capacity dimension have not been assessed in the present study, but shall be included in further research:

11. Personal initiative: Does the work require creative, unconventional behavior and ideas? Shall the employee be self-initiative in formulating and conducting new tasks or work strategies?
12. Self care: Is there a need for a smart appearance on the job? Is it essentially important to keep attention on one´s health and body?
13. Dyadic relationships: Does the job require working together with a stable working partner? Is it essential for the job that the employee builds up a trustful relationship?

https://doi.org/10.24355/dbbs.084-201907240929-0

https://doi.org/10.24355/dbbs.084-201907240929-0

https://doi.org/10.24355/dbbs.084-201907240929-0